Literacy interest, home literacy environment and emergent literacy skills in preschoolers

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Highlights

What is already known about this topic

- Children's literacy interest is positively associated with their literacy engagement and performance.
- Parents influence their children's literacy both through shared genetics and through the literacy environment they provide for their child.
- Parent and child ratings of the child's interest in literacy show only moderate correlations, suggesting they tap different facets of literacy interest.

What this paper adds

- Even young children can provide useful information on their interest in literacy activities.
- There is an association between literacy interest, home literacy environment and parent education and occupational status.
- Nonetheless, children's literacy interest has a substantial influence on emergent literacy after controlling for parental education and occupational status and home literacy environment.

Implications for theory, policy or practice

- The children's literacy interest measure is a potentially useful tool in identifying children at risk of literacy difficulties.
- Children's literacy interest is an important consideration in predicting literacy progress, even at school entry.
- Literacy interest is not closely associated with home literacy environment or parental socio-economic status.

Abstract

Purpose: Children's literacy interest is positively associated with their literacy attainments. However, interest in literacy activities, particularly for younger children, is likely influenced by their home literacy environment (HLE), which may also be bound up with socio-economic factors, such as parental education levels.

Method: In the present study, we examine whether literacy interest, HLE, and socio-economic status (SES) make independent contributions to emergent literacy skills. Fifty-five preschoolers aged 4- to 5-years completed a self-report measure of interest in literacy and three emergent literacy tasks. The parents provided information on SES and HLE.

Results: Children's literacy interest explained nearly 25% of the variance in emergent literacy skills after controlling for HLE and SES (which also made significant contributions).

Conclusions: The findings underscore the importance of literacy interest, independent of HLE and SES, and highlight the role that children themselves play in choosing their literacy environments.

Keywords: *Emergent literacy; home and community; SES; literacy interest; reading motivation*

Abbreviations: *HLE – home literacy environment; SES – socio-economic status*

Literacy Interest, Home Literacy Environment, and Emergent Literacy Skills in Pre-Schoolers

Children begin school with widely varying levels of emergent literacy, and it is well established that levels of emergent literacy upon school entry are a key predictor of later literacy and hence academic success more broadly (Shapiro, Carroll, & Solity, 2013; Storch & Whitehurst, 2002). These varying levels of emergent literacy must depend on a combination of genetic and environmental factors. Many previous studies have investigated the importance of HLE, but they have not always shown consistent results. In a key study, Senechal and LeFevre (2002) indicated two paths from home environment to school literacy: shared storybook reading is particularly important in boosting oral language and comprehension skills, while direct instruction is key for code related skills such as letter knowledge, phonological awareness, and word recognition.

However, recent findings have indicated that this is a significant oversimplification, and that the relationship between HLE and child attainment is much more complex and multi-directional. Early research on the role of HLE is in danger of treating children as passive recipients of information, and overlooking the role of child interest and enjoyment in early literacy activities. Recent research has indicated that parents alter the amount and nature of the literacy experiences they provide on the basis of the abilities of their child (Senechal & LeFevre, 2014). In addition, the association between HLE and child attainment reduces significantly when parental abilities are included, suggesting that the association may be partly explained in terms of genetic similarities in cognitive abilities between parents and children (Puglisi et al., 2017; Van Bergen et al., 2016).

In addition to these factors, it is important to consider the active role that a child plays in choosing their own experiences, even within the pre-school years. A child who is

interested in storybook reading or learning letters is likely to request this activity often and engage more deeply. The experience is therefore likely to be more rewarding for both parents and children. There is a growing evidence base that literacy interest plays an important role in early literacy skill (Hume, Allen, & Lonigan, 2016) and that child literacy interest is associated with the HLE (Hume, Lonigan, & McQueen, 2015), though the direction of the association is yet to be established.

Some previous studies have examined the role of the HLE and child interest in literacy on later literacy skills. Martini and Senechal (2012) indicate that child interest in letters predicts alphabet knowledge after accounting for HLE and parent socio-economic status. Frijters, Barron, & Brunello (2000) examined the role of the HLE and literacy interest on emergent literacy skills, and demonstrate that both show independent influences on vocabulary and letter sound knowledge. However, Frijters et al. do not control for background characteristics of the parents in this study. This is potentially crucial, since as described above, the association of HLE and literacy outcomes may be largely explained by genetic characteristics shared by parents and children (Puglisi et al., 2017; Van Bergen et al., 2016).

Baroody and Diamond (2013) compare different ways to assess child literacy interest, including parent and teacher ratings, classroom observations, and a child interview developed to be particularly suitable and accessible for four to six-year-old children. While parent and teacher ratings for child literacy interest were correlated, the children's ratings of their own interest in literacy did not correlate significantly with parent and teacher ratings, indicating that these measures address different facets of interest in literacy activities. Baroody and Diamond (2012) show that children's self-reported literacy interest is associated with alphabet knowledge in pre-school children, while measures of the HLE are not, indicating that examining child literacy interest is important for understanding emergent literacy.

To date, self-report measures of child interest in literacy have not been widely used, and to our knowledge they have not been used in an English context. The English context differs in several key ways from other countries: children in England begin school (reception class) at the age of four. In reception classes they receive daily phonics lessons and reading practice, but also spend much of their time in 'free flow' play, a context in which they can choose from a range of educationally relevant play-based activities. In this context, where children are in educational settings relatively early and can choose their activities to a certain extent, one might predict that HLE would be relatively less important and child interest in literacy would be relatively more important in predicting emergent literacy outcomes.

In sum, pre-school children's literacy interest is likely to have an impact upon their emergent literacy skills; but this may also intersect with their HLE and potentially socio-economic factors, such as parental education levels. In the present study, we utilise a 'self-report' child literacy measure (rather than parental or teacher rating) – one of the first of its kind with preschoolers – and examine whether their literacy interest, HLE, and SES is predictive of their emergent literacy skills. Our hypothesis is that literacy interest will make a positive contribution to emergent literacy skills after accounting for HLE and SES.

Method

Participants

Fifty-five children and their caregivers (parents or guardians) were recruited from four primary schools in the West Midlands, UK. According to the most recent Ofsted inspection reports (http://www.education.gov.uk/schools/performance/) these schools were comparable in terms of size, locality, and proportion of males to females. Three of the schools had a similar percentage of pupils who did not speak English as their first language, and a lower than average proportion of pupils who were known to be eligible for free school

meals (an indicator of SES in the UK). The fourth school had a higher percentage of pupils with English not as their first language, and pupils receiving free school meals.

Participating children were aged between 4 years 9 months and 5 years 10 months (*mean* age = 5 years 2 months, *SD* = 4 months). Twenty-five of the sample were male and 30 female. Twenty-seven individuals had experience of a language other than English, though in many of these cases English was the main language spoken at home. None of the children had been identified as having a special educational need. To provide an indication of sample performance, the *mean* vocabulary raw score of the total sample according to the British Picture Vocabulary Scales III (described below; Dunn, Dunn, Styles, & Sewell, 2009) was 58.85 (*SD* = 14.85), which equates to a standardised vocabulary score of 98 and falls in the average score range. There is evidence that the self-reported child interest measure is more appropriate and likely to be associated with literacy skills for samples of pre-schoolers who have average age-level vocabulary scores compared to children who have lower vocabulary scores (Baroody & Diamond, 2012).

Measures

SES. An adapted version of the Family Information Survey (Odom et al., 2003) provided a measure of parents' or guardians' education and occupation – two highly correlated and widely accepted indicators of SES (Nam & Boyd, 2004). For education, parents/guardians had to indicate their highest level of achievement (and that of their partner, where relevant) from the following: masters/PhD; college or university graduate; specialized training (BTEC, apprenticeship); completed A-Levels (or equivalent); completed secondary school; partial secondary school; less than secondary school. For occupation, parents/guardians had to indicate their current profession (and that of their partner, where relevant) and this was then classified by the researcher in accordance with the Social Class Pyramid (Thompson & Hickey, 2005; Walsh, 2004) as either: upper; upper middle; lower

middle; working class; lower class; unemployed. On this scale, a lower score corresponds with a higher education level and a higher occupational class.

HLE; The Home Literacy Environment Questionnaire (Umek, Podlesek, & Fekonja, 2005) provided a measure of children's literacy activities within the home. It comprises 33 items that are divided into five categories: stimulation to use language and explanation; reading books to their child and visiting the library and puppet theatre; joint activities and conversations; interactive reading; and zone of proximal development stimulation. Using a Likert scale response format parents/caregivers were required to rate their level of agreement with each statement on a scale of 1 (never) to 6 (always), and a total (/198) or mean score across items (/6) can be obtained; thus, a higher score corresponds with a 'superior' HLE. The internal reliability (Cronbach's α) was .94.

Literacy interest; The Children's Interest Measure (Baroody, Diamond, & Hong, 2006) provided a measure of children's literacy interest in two parts: enjoyment of and frequency of participation in the activity. It is well established that children can reliably report on their interest in literacy activities at this age (Baroody & Diamond, 2012), and it is likely that they are less influenced by social desirability biases than adults. Following practice trials using food items, children were shown 8 test items (pictures) which symbolised different literacy activities (reading, letters, and writing) and were asked the extent to which they liked to do that activity from: a lot; a little; does not like a little; does not like at all. A smiley face was chosen that corresponded to liking or disliking the item/activity. The child was then shown a small or large circle that corresponded to a little or a lot. Together this created the 4-point scale... Items were scored so that 4 points were assigned for 'likes a lot', 3 points for 'likes a little', 2 points for 'does not like a little', and 1 point for 'does not like at all', Next children were shown trial items of everyday activities (e.g., brushing teeth) followed by 8 literacy items and asked using a bar graph how often they participated in the

activity. This created a 4-point scale corresponding to 4 ‘everyday’, 3 points for ‘lots of days’, 2 points for ‘only a few days’, and 1 point for ‘no days’. Higher scores correspond with higher levels of literacy interest. In order to reduce response position bias, the order of the response options was reversed for 8 of the items. A total (/64) was obtained. The internal reliability (Cronbach’s α) was .97.

Emergent literacy; Emergent literacy was measured using the letter knowledge, phoneme isolation, and rhyme awareness subscales of the Preschool and Primary Inventory of Phonological Awareness (Dodd, Crosbie, McIntosh, Teitzel, & Ozanne, 2000) along with the British Picture Vocabulary Scales III (Dunn, Dunn, Styles, & Sewell, 2009).

In the ***letter knowledge*** subtest, children were required to say the sound of the letter to which the administrator was pointing. The test involved two practice items and 32 test items. Test items included single grapheme correspondence (e.g., “d”), and diagraphs (e.g., “ch”). The internal reliability (Cronbach’s α) was .80.

In the ***phoneme isolation*** subtest, children were shown a picture that went with a word orally produced by the administrator (e.g., “shoe” with a picture of a shoe) and were required to say the first phoneme of that word (i.e., “sh”). There were 2 practice items and 12 test items. The internal reliability (Cronbach’s α) was .94.

In the ***rhyme awareness*** subtest, children were shown four words, three of which rhymed and one that did not e.g. “snake, rake, cake, corn”. The test required the child to choose the one word that did not rhyme. The words were spoken by the administrator and supported by pictures as a memory aid. The test comprised 14 items in total, 2 practice items and 12 test items. The internal reliability (Cronbach’s α) was .89.

In the ***British Picture Vocabulary Scales III***, children heard a word that was orally presented by the test administrator and were required to point to the picture that best corresponded to that word from a choice of four pictures that were available. There were up

to 168 items of increasing difficulty and children received one point for each correct answer. The start points and discontinue points were administered in line with task guidelines. Reliability is built into the confidence bands (Dunn et al., 2009).

Procedure

Data were collected between April and June 2014. Once informed consent had been gained from the head teacher at the participating schools, eligible parents/guardians were sent information sheets and consent forms via the school. Those who provided informed consent were then asked to complete the Family Information Survey and Home Literacy Environment Questionnaire. The children of consenting parents/guardians were then given a 'child-friendly' summary of the research and were required to provide their verbal assent to take part. Those children who provided assent were individually assessed during school time by a single researcher in a quiet room at their respective schools. The five child assessments in this study (children's interest measure, letter knowledge, rhyme awareness, phoneme isolation, and British picture vocabulary scales III) were administered in this fixed order over two sessions following administration instructions in the test manuals.

Results

Descriptive statistics for all assessments (SES, SES – parents' education and occupation, HLE, child literacy interest, and emergent literacy – vocabulary, letter knowledge, phoneme isolation, and rhyme awareness) are presented in Table 1.

<TABLE 1 NEAR HERE>

The education and occupation level (SES) of parents/guardians was in the higher to mid-range (respectively). Measures of dispersion indicated that there was variability in performance within the sample. Normal distributions were rarely observed on individual measures; however, HLE and child literacy interest were corrected using Reflect and Square-Root transformation. As decided a priori, to also reduce the number of parameters and create

a single estimate of emergent literacy and SES, respectively, a composite factor was computed for each. In separate analyses, the factorability of the four emergent literacy measures (vocabulary, letter knowledge, phoneme isolation, and rhyme awareness) and the four SES measures (parents' education and occupation) was examined. The method used for factor extraction was principal component analysis and the rotation method was varimax with Kaiser normalisation. For emergent literacy, the Kaiser-Meyer-Olkin measure of sampling adequacy was .779, above the commonly recommended value of .60, and Bartlett's Test of sphericity was significant, $\chi^2(6, N = 55) = 99.490$, $p < .001$, and for SES, the Kaiser-Meyer-Olkin measure of sampling adequacy was .685, and Bartlett's Test of sphericity was significant, $\chi^2(6, N = 55) = 78.926$, $p < .001$.

For emergent literacy, the extraction revealed a single component with eigenvalues above 1 explaining 69.7% of the variance of the model, and for SES, the extraction also revealed a single component with eigenvalues above 1 explaining 61.8% of the variance of the model. Given these overall indicators, factor analysis (principal components analysis) was deemed suitable to identify and compute composite scores for the emergent literacy measures and SES measures, respectively. These composite scores were approximately normally distributed and could justifiably be included in the subsequent correlational and regression analyses.

What is the bivariate relation between literacy interest, HLE, SES, and emergent literacy?

Bivariate (zero-order) correlations between these variables are presented in Table 2. Age did not show a significant correlation with any other measure and is therefore not considered further. All four of the emergent literacy tasks showed strong inter-correlations, supporting the view that in this sample they are tapping some common variance.

<TABLE 2 NEAR HERE>

It can be seen from the bivariate (zero-order) correlations that all variables (SES, HLE, literacy interest) significantly correlated with emergent literacy (both the single factor score and the individual measures), as expected. A significant correlation was also found between SES and literacy interest; however, HLE did not correlate with SES or literacy interest. The pattern of correlations was very similar in the monolingual and bilingual participants, except that there was some tendency for closer associations between the background variables in the bilingual groups (HLE and literacy interest: monolingual: r(28) = .09, p = .66, bilingual: r(27) = .32, p = .11; SES and literacy interest: monolingual: r(28) = .26, p = .18, bilingual: r(27) = .37, p = .06; HLE and SES: monolingual: r(28) = .18, p = .36; bilingual: r(27) = .28, p = .16).

Can literacy interest, HLE, and SES make a unique contribution (beyond the influences of the other predictors) to emergent literacy?

In order to examine whether SES, the HLE, and literacy interest can predict emergent literacy (independently of one another), we conducted a multiple regression analysis using the enter method (Table 3). In each case, we also report the individual contribution of each variable entered at Step 2 (ΔR^2 change) after controlling for all other variables entered at Step 1. Preliminary analyses were conducted to ensure that the data met the assumptions for a multiple regression analysis.

<TABLE 3 NEAR HERE>

As a whole, the model predicted 50% of the variance in emergent literacy. Once the other variables in the model had been accounted for, SES was able to account for an additional 4.3% of the variance, R^2 change = .043, $F(1, 51) = 4.374$, $p = .041$, and HLE was able to account for an additional 6.5% of the variance, R^2 change = .065, $F(1, 51) = 6.616$, $p = .013$. However, after controlling for SES and the HLE, literacy interest was able to account for an additional 21.6% of the variance in emergent literacy, R^2 change = .216, $F(1, 51) =$

22.091, $p < .001$. Thus, all predictor variables in the model were able to make a unique contribution (beyond the influences of the other predictors) to emergent literacy; however, literacy interest was found to be by far the strongest predictor.

Discussion

The current study investigated the contribution of literacy interest, HLE, and SES to emergent literacy skills in a sample of 4- and 5-year-old children. The aim of the study was to utilise a 'self-report' measure of literacy interest completed by the child (rather than parents/guardians or teachers) and determine whether any of these factors could make an independent contribution (beyond the influences of the other predictors) to emergent literacy skills.

In line with our expectations (e.g., Baroody & Diamond, 2012; Hume et al., 2016; Martini & Senechal, 2012), literacy interest accounted for a substantial amount of variance (nearly one-quarter) in emergent literacy skills. The results converge with Frijters et al. (2000) who found that both literacy interest and HLE are independent predictors of literacy skills; although we add to the literature by demonstrating that this pattern of predictive relations remains after controlling for SES. The finding that HLE made a significant independent contribution was consistent with Senechal and LeFevre (2002); although Baroody and Diamond (2012) found that HLE was unable to account for unique variance after controlling for literacy interest in a low-income sample. It is difficult to know why the effect was larger for the present study. As the measures of HLE were different in the two cases, it is impossible to make direct comparisons. One hypothesis is that the samples differed between the two studies. For example, in Baroody and Diamond (2012), the sample was low-income and many children had below-average language scores on the Peabody Picture Vocabulary assessment (*mean* = 92 compared to a of 98 in the current sample).

Literacy interest accounted for an unusually large proportion of the variance in emergent literacy in comparison to previous studies. There are multiple possible explanations for this finding. One is that literacy interest plays a particularly important role in this age group in the UK. As described above, these children are in formal schooling, but spend much of their day in free-flow play with a variety of educationally relevant activities to choose from. A child with a keen interest in literacy would be able to choose to spend a good deal of each day reading and writing, while a child uninterested in literacy would spend much less time on these activities. A second possible explanation is that the middle income sample meant that there was a relatively small variation in HLE, allowing a greater role for literacy interest (though the significant association between HLE and emergent literacy, in contrast to Baroody & Diamond, 2012, argues against this). It is also possible that the interest measure was more accurate in this sample due to the higher vocabulary levels of the children as mentioned above. This would be consistent with the conclusion found in Baroody and Diamond (2012). Finally, the use of a factor score of emergent literacy encompassing letter knowledge, phonological awareness and vocabulary minimises measurement error, allowing more variance to be explained.

Practical Implications

It is important to acknowledge that even young children are also active agents who shape their experiences and environments in many ways. In particular, the UK reception classroom may provide an environment open to change in literacy levels according to levels of interest, given the chances available to choose additional literacy activities. The negative counterpoint to this is that free flow classroom activities may exacerbate existing differences between children who enjoy reading and writing and those who do not.

The findings suggest that making literacy learning more interesting (regardless of HLE and SES) may support the development of children’s emergent literacy skills. More

research is needed to explore the factors that boost interest in literacy at school entry. Perhaps contrary to intuition, child literacy interest is not closely related to home literacy environment. During the preschool years, interest in literacy tends to be high before it starts to decline during the elementary school years and beyond (McKenna, Kear, & Ellsworth, 1995). Therefore, boosting interest during the preschool years when children are likely to enjoy literacy activities may provide children with a strong foundation for entering the primary grades.

Limitations and Future Directions

Previous research has suggested multiple different routes between home literacy environment and literacy outcomes, with storybook reading influencing oral language and formal instruction influencing code related skills (Senechal & LeFevre, 2002). We were unable to examine this proposition in this study, due to home literacy environment measures used and the relatively small sample size. The high correlations between the different emergent literacy measures indicated that there were unlikely to be different patterns of prediction for them in this particular sample.

There are some further methodological limitations that are important to recognize when interpreting the findings. First, not unlike other studies in this area (e.g., Baroody & Diamond, 2013), only a single self-report measure of children's literacy interest was used. Although gaining a measure of literacy interest from the child rather than parent or teacher was a strength of this study, it may have been beneficial to also gain parent and teacher ratings since they measure unique facets of child literacy interest. Second, a cross sectional approach was used, making it impossible to be sure of the direction of the association between literacy interest and emergent literacy. Nonetheless, the control for HLE and SES indicate that this association is not likely to be explained in terms of general environmental characteristics. Future research could collect literacy interest and environmental

characteristics scores across time providing multiple data points which would allow for the examination of directionality of the relation.

Conclusion

In the present study, we found that children's literacy interest was by far the strongest predictor of emergent literacy skills after controlling for HLE and SES (which were also found to make a smaller yet significant independent contribution). The findings underscore the importance of literacy interest and suggest that understanding the predictors of child literacy interest itself may be an important step forward in improving literacy outcomes.

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Table 1

Summary statistics for children on all measures in this study

Measure	Mean	SD	Skewness	Kurtosis
SES				
Parent 1 Education	2.16	1.63	8.07	11.42
Parent 1 Occupation	3.47	1.43	2.65	-.89
Parent 2 Education	2.42	1.9	5.95	4.46
Parent 2 Occupation	3.09	1.43	4.99	3.25
Home Literacy Environment	151.87	20.86	-3.67	2.73
Child Literacy Interest	44.91	13.22	-2.45	-.52
Emergent literacy				

Vocabulary	58.85	14.85	-2.52	2.03
Letter Knowledge	26.6	4.72	-2.59	.13
Phoneme Isolation	10	3.45	-6.84	5.98
Rhyme Awareness	5.98	3.75	-.4	-1.63

Note. The mean scores presented above are 'raw scores' and the values reported for skewness and kurtoses are z-scores. For those tests with associated norms these raw scores equate to a mean standardised score that falls in the normal range.

Table 2

Correlation matrix between the measures in this study

Variables	1	2	3	4	5	6	7	8
1. Age	-							
2. SES	.03	-						
3. Home Literacy Environment	-.03	.20	-					
4. Literacy Interest	.20	.32*	.18	-				
5. Emergent Literacy	.04	.43**	.40**	.61**	-			
6. Receptive Vocabulary	.11	.35**	.36**	.60**	.91**	-		
7. Letter knowledge	.07	-.26	.25	.50**	.86**	.72**	-	
8. Phoneme Identification	-.07	.55**	.29*	.46**	.82**	.66**	.65**	
9. Rhyme Awareness	.01	-.27	.43**	.47**	.74**	.63**	.63**	.44**

Note. Bivariate correlations (Pearson) are presented above with appropriate directional adjustment for those pairings involving transformed (reflected) variables.

*p<.05; **p<.01; ***p<.001

Table 3

Multiple regression analysis predicting emergent literacy from SES, the home literacy environment, and literacy interest

Criterion Variable	Predictor Variable	*B*	*SE B*	β	*ΔR²*
Emergent Literacy					
(R^2 = .505***)	SES	.221	.105	.221*	.043*
	Home Literacy Environment	.165	.064	.262*	.065*
	Literacy Interest	.330	.070	.494***	.216***

Note: Tabled values are presented in nonstandardized regression coefficients (*B*) with standard errors (*SE*), standardized regression coefficients (β) and changes in R^2 (ΔR^2), and each line represents individual contributions are controlling for all other variables. Appropriate directional adjustment has been for those pairings involving transformed (reflected) variables.

*p<.05; **p<.01; ***p<.001